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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/786,885

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Grant C. Zenkner

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10/03/2007

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EXAMINER

HUSON, MONICA ANNE

ART UNIT

PAPER NUMBER

1732

MAIL DATE

DELIVERY MODE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/786,885

Applicant(s)

ZENKNER ET AL.

Examiner

Monica A. Huson

Art Unit

1732

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 20 July 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) 20-26 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 August 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

This office action is in response to the RCE filed 20 July 2007.

#### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-5 and 12-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshino (U.S. Patent 3,703,422), in view of Irvine (U.S. Patent 3,334,383). Regarding Claim 1, Yoshino shows that it is known to carry out a method of processing a composite component, comprising: providing a lay-up mandrel (Figure 3, element 15); forming a prepreg material on the non-planar portion of a lay-up mandrel (Figure 3, element 17); providing an elastomeric caul over the prepreg material in an initial position such that a first portion of the elastomeric caul is proximate the prepreg material on the lay-up mandrel, and a second portion of the elastomeric caul adjacent the first portion is spaced apart from the prepreg material (Figure 3, element 18); reducing a pressure within a space disposed between the elastomeric caul and the lay-up mandrel (Column 3, lines 33-35); and simultaneously with the reducing of the pressure with the space, stretching the elastomeric caul into a second position such that the second portion of the elastomeric caul is drawn into continuous engagement with proximate to at least one of the prepreg material and the lay-up mandrel (Column 2, lines 65-67; Column 3, lines 33-35). Yoshino does not show a non-planar mandrel. Irvine shows that it is known to carry out a vacuum molding process wherein the mandrel has a non-planar portion (Figure 2, element 34). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to use Irvine's mandrel during Yoshino's process in order to form a composite component which has a desired shape including non-planar portions.

Regarding Claim 2, Yoshino shows the process as claimed as discussed in the rejection of Claim 1 above, including a method further comprising applying at least one of an elevated temperature and an elevated pressure to the prepreg material (Column 2, lines 68-70), meeting applicant's claim.

Regarding Claim 3, Yoshino shows the process as claimed as discussed in the rejection of Claim 1 above, but he does not show a non-planar mandrel. Irvine shows that it is known to carry out a method wherein providing an elastomeric caul over the prepreg material in an initial position includes providing a stretchable elastomeric caul wherein, in a relaxed state the elastomeric caul is not shaped to conform to the non-planar portion (Figure 2). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to use Irvine's mandrel during Yoshino's process in order to form a composite component which has a desired shape including non-planar portions.

Regarding Claim 4, Yoshino shows the process as claimed as discussed in the rejection of Claim 1 above, but he does not show a non-planar mandrel. Irvine shows that it is known to carry out a method wherein providing a prepreg material on a non-planar portion of a mandrel includes providing a prepreg material on a step-shaped portion of the mandrel (Figure 2). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to use Irvine's mandrel during Yoshino's process in order to form a composite component which has a desired shape including non-planar portions.

Regarding Claim 5, Yoshino shows the process as claimed as discussed in the rejection of Claim 4 above, but he does not show a step-shaped mandrel. Irvine shows that it is known to carry out a method wherein the step-shaped portion of the mandrel includes an upper step portion, a middle step portion extending downwardly from the upper step portion, and a lower step portion extending away from the middle step portion, and wherein providing an elastomeric caul over the prepreg material in an initial position includes providing the elastomeric caul over the prepreg material such that the first portion of the caul is engaged with the prepreg material on the upper step portion and the second portion of the caul extends between the upper step portion and the lower step portion (Figures 2-3). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to use Irvine's mandrel during Yoshino's process in order to form a composite component which has a desired shape including non-planar portions.

Regarding Claim 12, Yoshino shows that it is known to carry out a method of processing a composite component, comprising: forming a composite material on the non-planar portion of a lay-up mandrel (Figure 3, element 17); providing an elastomeric caul over the composite material in an initial position such that a first portion of the elastomeric caul is proximate the composite material on the lay-up mandrel, and a second portion of the elastomeric caul adjacent the first portion is spaced apart from the composite material (Figure 3, element 18); reducing a pressure within a space disposed between the elastomeric caul and the lay-up mandrel (Column 3, lines 33-35); simultaneously with the reducing of the pressure

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with the space, stretching the elastomeric caul into a second position such that the second portion of the elastomeric caul is drawn into continuous engagement with proximate to at least one of the composite material and the lay-up mandrel (Column 2, lines 65-67; Column 3, lines 33-35), and curing the composite material (Column 3, lines 36-37). Yoshino does not show a non-planar mandrel. Irvine shows that it is known to carry out a vacuum molding process wherein the mandrel has a non-planar portion (Figure 2, element 34). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to use Irvine's mandrel during Yoshino's process in order to form a composite component which has a desired shape including non-planar portions.

Regarding Claim 13, Yoshino shows the process as claimed as discussed in the rejection of Claim 12 above, including a method further comprising applying at least one of an elevated temperature and an elevated pressure to the prepreg material (Column 2, lines 68-70), meeting applicant's claim.

Regarding Claim 14, Yoshino shows the process as claimed as discussed in the rejection of Claim 12 above, but he does not show a non-planar mandrel. Irvine shows that it is known to carry out a method wherein providing an elastomeric caul over the prepreg material in an initial position includes providing a stretchable elastomeric caul wherein, in a relaxed state the elastomeric caul is not shaped to conform to the non-planar portion (Figure 2). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to use Irvine's mandrel during Yoshino's process in order to form a composite component which has a desired shape including non-planar portions.

Regarding Claim 15, Yoshino shows the process as claimed as discussed in the rejection of Claim 12 above, but he does not show a step-shaped mandrel. Irvine shows that it is known to carry out a method wherein the step-shaped portion of the mandrel includes an upper step portion, a middle step portion extending downwardly from the upper step portion, and a lower step portion extending away from the middle step portion, and wherein providing an elastomeric caul over the prepreg material in an initial position includes providing the elastomeric caul over the prepreg material such that the first portion of the caul is engaged with the prepreg material on the upper step portion and the second portion of the caul extends between the upper step portion and the lower step portion (Figures 2-3). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to use Irvine's mandrel during Yoshino's process in order to form a composite component which has a desired shape including non-planar portions.

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Claims 6-11, and 16-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshino and Irvine, further in view of Mead (U.S. Patent 6,620,369).

Regarding Claim 6, Yoshino shows the process as claimed as discussed in the rejection of Claim 5 above, but he does not show placement of the caul including a third portion at a specific location. Mead shows that it is known to carry out a method wherein providing an elastomeric caul over the prepreg material in an initial position includes providing the elastomeric caul over the prepreg material such that a third portion of the caul adjacent the second portion and opposite the second portion from the first portion is engaged with the lower step portion of the mandrel (Figure 5). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to follow Mead's placement of the caul during Yoshino's molding process in order to properly form the final product according to customer specifications.

Regarding Claim 7, Yoshino shows the process as claimed as discussed in the rejection of Claim 1 above, but he does not show placement of the caul including a third portion at a specific location. Mead shows that it is known to carry out a method wherein providing an elastomeric caul over the prepreg material in an initial position includes securing an initial portion of the elastomeric caul into a fixed position relative to the mandrel, the third portion of the caul being adjacent the second portion and opposite the second portion from the first portion (Figure 5). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to follow Mead's placement of the caul during Yoshino's molding process in order to properly form the final product according to customer specifications.

Regarding Claim 8, Yoshino shows the process as claimed as discussed in the rejection of Claim 7 above, but he does not show a securing of the caul. Mead shows that it is known to carry out a method wherein securing a third portion of the elastomeric caul includes sealing the elastomeric caul (Figures 8 and 10, element 56; It is interpreted that Mead's sealant is functionally equivalent to a clamping member). It would have been obvious for one of ordinary skill in the art to provide a clamping member to seal the first, flexible vacuum bag (caul) as an equivalent alternative to the sealant in the process of Mead, during Yoshino's molding method, because of known advantages such as simplicity and cleanliness and also because sealants and clamping members are known to be equivalent alternatives.

Regarding Claim 9, Yoshino shows the process as claimed as discussed in the rejection of Claim 1 above, but he does not show placement of the caul including a third portion at a specific location. Mead shows that it is known to carry out a method wherein reducing a

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pressure within a space disposed between the elastomeric caul and the mandrel includes securing a third portion of the elastomeric caul into a fixed position relative to the mandrel by reducing the pressure within the space (Figure 5). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to follow Mead's placement of the caul during Yoshino's molding process in order to properly form the final product according to customer specifications.

Regarding Claim 10, Yoshino shows the process as claimed as discussed in the rejection of Claim 1 above, but he does not show using a release layer. Mead shows that it is known to carry out a method further comprising providing a release layer between the prepreg material and the elastomeric caul (Figure 5). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to use Mead's release layer during Yoshino's molding process in order to easily remove the caul from the prepreg.

Regarding Claim 11, Yoshino shows the process as claimed as discussed in the rejection of Claim 1 above, but he does not show placement of the caul including a third portion at a specific location. Mead shows that it is known to carry out a method wherein comprising providing an elastomeric caul over the prepreg material in an initial position further includes providing an elastomeric caul having a third portion adjacent the first portion and spaced apart from the prepreg material, and wherein stretching the elastomeric caul into a second position further includes stretching the elastomeric caul such that the third portion is drawn into continuous engagement with proximate at least one of the prepreg material and the lay-up mandrel (Figure 5). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to follow Mead's placement of the caul during Yoshino's molding process in order to properly form the final product according to customer specifications.

Regarding Claim 16, Yoshino shows the process as claimed as discussed in the rejection of Claim 5 above, but he does not show placement of the caul including a third portion at a specific location. Mead shows that it is known to carry out a method wherein providing an elastomeric caul over the composite material in an initial position includes providing the elastomeric caul over the composite material such that a third portion of the caul adjacent the second portion and opposite the second portion from the first portion is engaged with the lower step portion of the mandrel (Figure 5). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to follow Mead's placement of the caul during Yoshino's molding process in order to properly form the final product according to customer specifications.

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Regarding Claim 17, Yoshino shows the process as claimed as discussed in the rejection of Claim 12 above, but he does not show placement of the caul including a third portion at a specific location. Mead shows that it is known to carry out a method wherein providing an elastomeric caul over the composite material in an initial position includes securing an initial portion of the elastomeric caul into a fixed position relative to the mandrel, the third portion of the caul being adjacent the second portion and opposite the second portion from the first portion (Figure 5). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to follow Mead's placement of the caul during Yoshino's molding process in order to properly form the final product according to customer specifications.

Regarding Claim 18, Yoshino shows the process as claimed as discussed in the rejection of Claim 12 above, but he does not show placement of the caul including a third portion at a specific location. Mead shows that it is known to carry out a method wherein reducing a pressure within a space disposed between the elastomeric caul and the mandrel includes securing a third portion of the elastomeric caul into a fixed position relative to the mandrel by reducing the pressure within the space (Figure 5). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to follow Mead's placement of the caul during Yoshino's molding process in order to properly form the final product according to customer specifications.

Regarding Claim 19, Yoshino shows the process as claimed as discussed in the rejection of Claim 12 above, but he does not show placement of the caul including a third portion at a specific location. Mead shows that it is known to carry out a method wherein comprising providing an elastomeric caul over the composite material in an initial position further includes providing an elastomeric caul having a third portion adjacent the first portion and spaced apart from the composite material, and wherein stretching the elastomeric caul into a second position further includes stretching the elastomeric caul such that the third portion is drawn into continuous engagement with proximate at least one of the composite material and the lay-up mandrel (Figure 5). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to follow Mead's placement of the caul during Yoshino's molding process in order to properly form the final product according to customer specifications.



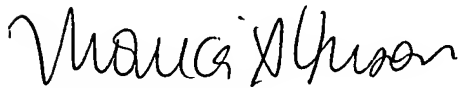
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**Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Monica A. Huson whose telephone number is 571-272-1198. The examiner can normally be reached on Monday-Friday 7:00am-4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Johnson can be reached on 571-272-1176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Monica A Huson

September 30, 2007